

Addition of one hundred and forty-seven new vascular taxa to the flora of Bangladesh

Md Salah Uddin^{1*}, Abdullah-Al-Masud Mazumder²,
Shaikh Bokhtear Uddin³

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Author Affiliation:

¹Department of Biology, Kyungpook National University, Daegu 41566, Korea Republic

²Silviculture Research Division, Bangladesh Forest Research Institute, Sholashahar, Chattogram 4000, Bangladesh

³Ethnobotany and Pharmacognosy Lab., Department of Botany, University of Chittagong, Chattogram 4331, Bangladesh

*Corresponding author

Department of Biology, Kyungpook National University, Daegu 41566

Korea Republic

Email: plantsofbd@gmail.com

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ABSTRACT

All 147 new vascular taxa that are added to the flora of Bangladesh in this study are not included in Flora of British India, Bengal Plants, The Encyclopedia of Flora and Fauna of Bangladesh, or Rahman's research publications. These new taxa are categorized into 111 genera and 53 families. A total of 3,956 vascular taxa have been reported for the flora of Bangladesh from this updated compilation. In addition to the seventeen genera that are being reported here as new generic records for Bangladesh, ten taxa that are novel to the world flora have been discovered. According to the study, six families, including Orchidaceae (22 taxa), Acanthaceae (18 taxa), Rubiaceae (11 taxa), Euphorbiaceae (10 taxa), Araceae (8 taxa) and Commelinaceae (6 taxa) contain the highest number of new taxa. Nomenclature, family name, citation and precise locations are listed for each taxon.

Keywords: New additions, new records, new species, vascular taxa, Flora of Bangladesh.

1. INTRODUCTION

Bangladesh is located between the longitudes of 88°01'E and 94°41'E and the latitudes of 20°34'N and 26°33'N. Its area is around 1,47,570 sq. km. Most of the area is a flat plain that is crisscrossed by numerous river systems. Bangladesh is incredibly diverse due to its subtropical climate and ideal geophysical conditions for plant growth. The number of plant species in the country is thought to be around 5,327 (Pasha and Uddin, 2013). Despite several floristic research projects being conducted in the fifty years since Bangladesh's founding, the country's botanical exploration has not yet been completed. Significant contributions to floristic research in the Indian subcontinent were made by Hooker, (1872–1877) and Prain, (1903), who also recorded many species from the area that is now Bangladesh. Additionally, various workers have created some of the local flora of Bangladesh (Heinig, 1925; Cowan, 1926; Raizada, 1941; Datta and Mitra, 1953; Sinclair, 1956).

The flora of Bangladesh has recently attracted the attention of multiple authors, who identified numerous taxa as being new to the country. Mia and Khan, (1995) added a total of 325 species discovered by various researchers up to that point for Bangladesh to the first list of angiosperms taxa not found in the

Flora of British India (Hooker, 1872-1897) and Bengal Plants (Prain, 1903) publications. Rahman (2004a, b) expanded our understanding of the Bangladeshi flora by 138 angiosperm species. In the Encyclopedia of Flora and Fauna of Bangladesh, Ahmed et al., (2008–2009) and Siddiqui et al., (2007) added several new angiosperm records for the flora Bangladesh while compiling 3,649 vascular taxa that were present there. 160 additional taxa have been compiled (Rahman, 2017; Rahman, 2018) following the monumental contribution provided by Ahmed et al., (2008-2009) and Siddiqui et al., (2007). After Rahman's compilation (2017, 2018), many more taxa have been discovered by various researchers of BNH and other research institutes, either as new records for Bangladesh's flora or as new species to the world flora. Therefore, the current study intends to create a precise checklist of all the new additions published either as new species or new records for the vascular flora of Bangladesh since Rahman's (2017, 2018), including some new records that were omitted from Rahman's (2017, 2018) list.

2. MATERIALS AND METHODS

This study was supported by published publications on new records and new species from Bangladesh. The newly reported taxa of Bangladesh have been updated and finalized after consulting all pertinent published papers and literature (Hooker, 1872-1897; Prain, 1903; Mia and Khan, 1995; Rahman, 2004a, b; Siddiqui et al., 2007; Ahmed et al., 2008-2009; Rahman, 2017 and Rahman, 2018). The new taxa are listed alphabetically along with their nomenclature, family name, publication citation and precise locality. The following list includes the vascular taxa that were identified as new to the flora of Bangladesh;

1. *Abrus precatorius* L. var. *albo-spermum* Hassan, Rahman et Afroz, var. nov. (Fabaceae). Hassan et al (2021). p. 289. Gazipur: Kapasia.
2. *Acalypha wilkesiana* Muell.-Arg., (Euphorbiaceae). Uddin et al (2018). p. 97. Barisal: Bogra, Shahid Zia Smreeti road, Barisal City Corporation area.
3. *Aerides roseum* Loddiges. ex. Lindl., (Orchidaceae). Huda et al (2019). p. 120.
4. *Ageratum houstonianum* Mill., (Asteraceae). Rahman et al (2022). p. 103. Dinajpur: Singra National Park.
5. *Alocasia hararganjensis* H. Ara & M.A. Hassan, sp. nov. (Araceae). Ara & Hassan (2018). p.228. Bangladesh: Moulvibazar, Gazipur beat, Hararganj reserve forest.
6. *Alocasia salarkhanii* H. Ara & M.A. Hassan, sp. nov. (Araceae). Ara & Hassan (2018). p.231. Bangladesh: Moulvibazar, Lawachara reserve forest.
7. *Amischotolype hookeri* (Hassk.) H.Hara, (Commelinaceae). Uddin (2018). p. 15. Cox's Bazar: Ramu, Eidgor.
8. *Anaxagorea luzonensis* A. Gray, (Annonaceae). Uddin (2018). p. 8. Rangamati: Bilaichari, Pharu Reserved Forest.
9. *Arenga westerhoutii* Griff., (Arecaceae). Sourav & Anwar (2019). p. 374. Bandarban: Thanchi, Sangu Reserve Forest.
10. *Asystasiella neesiana* (Wall.) Lindau., (Acanthaceae). Sultana et al (2022). p. 94. Sylhet: Khadimnagar National Park.
11. *Azolla microphylla* Kaulf., (Salviniaceae). Alfasane et al (2019). p.325. Kishoreganj: Itna, Kamalganj, Baribari, Kuniar Haor.
12. *Barringtonia asiatica* (L.) Kurz, (Lecythidaceae). Sourav (2019). p. 335. Cox's Bazar, Saint Martin's Island.
13. *Begonia sinuata* Wall. ex Meisn., (Begoniaceae). Uddin (2018). p. 12. Bandarban: Naikhongchhari, Gumdum.
14. *Blachia andamanica* (Kurz) Hook.f., (Euphorbiaceae). Uddin (2018). p. 18. Chattogram: Hathazari, Kumarikhal.
15. *Boehmeria japonica* (Linnaeus f.) Miquel, (Urticaceae). Uddin & Mazumder (2018). p. 2. Chittagong: Hazarikhil Wildlife Sanctuary.
16. *Boehmeria zollingeriana* Wedd., (Urticaceae). Islam et al (2018). p. 110. Bandarban: Ruma, Bogalake est side hill slope.
17. *Bridelia ferruginea* Benth. in Hook., (Euphorbiaceae). Uddin (2018). p. 18. Bandarban: Sadar, Nilachal Forest Range.
18. *Bulbophyllum crassipes* J. D. Hooker, (Orchidaceae). Houque et al (2019). p. 92. Chattogram: Dhobachari Beat, Dudhpukuria-Dhobachari Wildlife Sanctuary.
19. *Bulbophyllum cylindraceum* Wall. ex. Lindl., (Orchidaceae). Huda et al (2019). p. 122.
20. *Bulbophyllum orientale* Seidenf., (Orchidaceae). Uddin (2018). p. 31. Cox's Bazar: Banghabandhu Safari Park.
21. *Bulbophyllum rufinum* Rchb.f., (Orchidaceae). Houque et al (2019). p. 91. Bandarban: Ruma, Bogalake.
22. *Callisia fragrans* (Lindl.) Woodson, (Commelinaceae). Ashrafuzzaman et al (2022). p. 20787. Mymensingh: Bangladesh Agricultural University, Botanical Garden.
23. *Cansjera rheedii* J.F., (Opiliaceae). Uddin (2018). p. 31. Chattogram: Mirsharai, Khoyachara.
24. *Capparis cantoniensis* Lour., (Capparaceae). Uddin (2018). p. 13. Bandarban: Naikhyongchari, Gumdum.
25. *Cayratia maritima* Jackes., (Vitaceae). Hossain et al (2019). p. 150. Bagerhat: Shorankhola, Kotka.
26. *Celosia spicata* Spreng., (Amaranthaceae). Uddin (2018). p. 8. Rangamati: Bilaichari, Mora Alikheong.
27. *Centratherum punctatum* Cass., (Asteraceae). Uddin (2018). p. 9. Bandarban: Sadar, Y-Junction Forest Range.

28. *Chiloschista parishii* Seidenf., (Orchidaceae). Huda et al (2020). p. 2. Bandarban: Thanchi, Remakri.
29. *Cissampelos glaberrima* A.St.-Hil., (Menispermaceae). Sultana et al (2022). p. 96. Sylhet: Khadimnagar National Park.
30. *Cissus hastata* Miq., (Vitaceae). Uddin (2018). p. 42. Bandarban: Rowangchhari Forest.
31. *Clausena lansium* (Lour.) Skeels, (Rutaceae). Rahman et al (2018). p. 90. Moulvibazar: Madhabkundu eco-park, Barolekha.
32. *Cleidocarpon laurinum* Airy Shaw, (Euphorbiaceae). Uddin et al (2018). p. 94. Chittagong: Dhopachari, Chamachari.
33. *Cleisostoma simondii* (Gagnep.) Seidenf., (Orchidaceae). Hossain et al (2020). p. 252. Bagerhat: Shorankhola, Supati, Beside Supati khal.
34. *Cleisostoma simondii* var. *guangdongense* Z.H. Tsi, (Orchidaceae). Hossain et al (2020). p. 252. Bagerhat: Shorankhola, Supati, Beside Supati khal.
35. *Cleisostoma williamsonii* (Rehb.) Garay, (Orchidaceae). Huda et al (2020). p. 125. Sylhet: Shadi beat, Jaflong, Jaintiapur, Jaintia hill.
36. *Coelogyne ovalis* Lindl., (Orchidaceae). Huda et al (2020). p. 2. Bandarban: Chimbuk hill.
37. *Coelogyne schultesii* Jain and Das, (Orchidaceae). Huda et al (2021). p. 510. Sylhet: Joyantapur.
38. *Coelogyne schwadtkii* Danell., (Orchidaceae). Huda et al (2020). p. 124. Bandarban: Ruma, Boga Lake Para.
39. *Coelogyne suaveolens* (Lindl.) Hook. f., (Orchidaceae). Huda et al (2021). p. 510. Bandarban: Chimbuk.
40. *Coelogyne trinervis* Lindl., (Orchidaceae). Huda et al (2021). p. 510. Bandarban: Ruma.
41. *Colocasia fallax* Schott var. *purpurea* H. Ara & M.A. Hassan, var. nov. (Araceae). Ara & Hassan (2019). p.14. Bangladesh: Moulvibazar, Madhabkundu reserve forest.
42. *Colocasia hassanii* H. Ara, sp.nov. (Araceae). Ara (2018). p.102. Bangladesh: Bandarban district, on the way to Betchari.
43. *Colocasia oresbia* A. Hay var. *stolonifera* H. Ara & M.A. Hassan, var. nov. (Araceae). Ara & Hassan (2019). p.17. Bangladesh: Rangamati, Rangamati forest area.
44. *Combretum bracteosum* (Hochst.) Engl. & Diels, (Combretaceae). Uddin (2018). p. 14. Khagrachari: Matiranga, Achalong Reserve Forest.
45. *Conchidium extincitorium* (Lindl.) Y.P.Ng & P.J.Cribb, (Orchidaceae). Huda et al (2020). p. 7. Cox's Bazar: Teknaf, Jhahazphora.
46. *Cordia subcordata* Lam., (Boraginaceae). Rahman et al (2018). p. 91. Moulvibazar: Madhabkundu eco-park, Barolekha.
47. *Crotalaria berteriana* DC., (Fabaceae). Uddin (2018). p. 22. Cox's Bazar: Ramu, Bangdeba, Joarianala.
48. *Croton hirtus* L'Hér., (Euphorbiaceae). Uddin (2018). p. 19. Chattogram: Rangunia, Isamoti.
49. *Cucumis javanicus* (Miq.) Ghebret. & Thulin, (Cucurbitaceae). Uddin (2018). p. 16. Khagrachari: Matiranga, Achalong Reserved Forest.
50. *Cynoglossum wallichii* G. Don, (Boraginaceae). Uddin (2018). p. 13. Bandarban: Rowangchhari, Khanshama Bazar.
51. *Cyperus eleusinoides* Kunth, (Cyperaceae). Uddin (2018). p. 17. Rangamati: Rampahar, Baluchara.
52. *Dendrobium parvum* Rehb.f., (Orchidaceae). Huda et al (2020). p. 7. Bandarban: Thanchi, Remakri.
53. *Diospyros paniculata* Dalz., (Ebenaceae). Uddin (2018). p. 17. Cox's Bazar: Sadar, Bhomoriaghona.
54. *Discospermum sphaerocarpon* Dalz. ex Hook., (Rubiaceae). Uddin (2018). p. 35. Rangamati: Barkal, Barkal Reserve Forest.
55. *Elatostema platyphyllum* Wedd., (Urticaceae). Uddin (2018). p. 42. Bandarban: Sadar, Tankaboti Forest Range.
56. *Eranthemum macrophyllum* Wall. ex Nees, (Acanthaceae). Uddin (2018). p. 3. Bandarban: Ruma, Boga Lake.
57. *Euonymus laxiflorus* Champ. ex Benth., (Celastraceae). Sultana et al (2022). p. 98. Moulvibazar: Madhabkundu eco-park, Barolekha.
58. *Euonymus theifolius* Wall. ex M.A. Lawson in Hook.f., (Celastraceae). Uddin (2018). p. 14. Cox's Bazar: Kudumgath, Horikhola, Whykeong.
59. *Euphorbia pycnostegia* Boiss., (Euphorbiaceae). Uddin et al (2018). p. 95. Khulna: Khulna.
60. *Euphorbia repens* K. Koch, (Euphorbiaceae). Uddin et al (2018). p. 96. Barisal: Bogra, Shahid Zia Smreeti road, Barisal City Corporation area.
61. *Ficus trichocarpa* Blume, (Moraceae). Uddin (2018). p. 27. Bandarban: Rowangchhari, Rowangchhari Forest Range.
62. *Globba wengeri* (C.E.C.Fisch.) K.J.Williams, (Zingiberaceae). Uddin (2018). p. 43. Bandarban: Ruma, Poly Forest.
63. *Gymnema yunnanense* Tsiang, (Asclepiadaceae). Uddin (2018). p. 9. Bandarban: Ruma, Keokradong Forest.
64. *Hedyotis neesiana* Arn., (Rubiaceae). Uddin (2018). p. 35. Bandarban: Sadar, Kuhalong Forest Range.
65. *Hedyotis tenelliflora* Blume, (Rubiaceae). Uddin (2018). p. 36. Bandarban: Naikhyongchhari, Gumdhum.
66. *Hemiorchis burmanica* Kurz, (Zingiberaceae). Uddin (2018). p. 43. Rangamati: Kaptai, Sitapahar, Simanachari.
67. *Homalium ceylanicum* (Gardn.) Benth., (Flacourtiaceae). Uddin (2018). p. 23. Rangamati: Kaptai, Fering-kheong Forest.
68. *Hydrophyllax maritima* L.f., (Rubiaceae). Uddin (2018). p. 36. Cox's Bazar: Jhlongjha, Uttaron Residential Area.
69. *Hypoestes phyllostachya* Baker, (Acanthaceae). Ashrafuzzaman & Sarwar (2021). p. 449. Mymensingh: Bangladesh Agricultural University, Botanical Garden.
70. *Illigera trifoliata* (Griff.) Dunn, (Hernandiaceae). Uddin (2018). p. 24. Cox's Bazar: Teknaf, Kudum Guha.
71. *Impatiens glandulifera* Royle, (Balsaminaceae). Uddin (2018). p. 12. Bandarban: Thanchi, Sangu Reserve Forest.
72. *Ipomoea triloba* L., (Convolvulaceae). Sourav (2016). p. 102. Dhaka: Near Bannai Lake.
73. *Ixora brachiata* Roxb., (Rubiaceae). Uddin (2018). p. 37. Chattogram: Sitakundo, Chandranath.

74. *Ixora polyantha* Wight, (Rubiaceae). Uddin (2018). p. 37. Bandarban: Naikhyongchari, Gumdhum.
75. *Jasminum subglandulosum* Kurz, (Oleaceae). Uddin (2018). p. 28. Cox's Bazar: Teknaf, Kudum guha.
76. *Justicia comata* (L.) Lam., (Acanthaceae). Sultana & Rahman (2021). p. 145. Dhaka: Mirpur, National Botanical Garden.
77. *Justicia plumbaginifolia* J.Jacq., (Acanthaceae). Ashrafuzzaman & Sarwar (2021). p. 449. Mymensingh: Bangladesh Agricultural University, Botanical Garden.
78. *Knema attenuata* (Hook.f. & Thom.) Warb., (Myristicaceae). Uddin (2018). p. 27. Cox's Bazar: Ramu, Khuniapalong, Sisa beel.
79. *Knema erratica* (Hook.f. & Thom.) Sinclair, (Myristicaceae). Uddin (2018). p. 28. Bandarban: Thanchi Forest.
80. *Lasianthus constrictus* Wight, (Rubiaceae). Uddin (2018). p. 40. Bandarban: Alikadam, Matamuhuri Forest.
81. *Lepistemon lobatum* Pilger in Diels, (Convolvulaceae). Uddin (2018). p. 16. Bandarban: Bolipara, Sekdu Forest.
82. *Leptadenia reticulata* (Retz.) Wight & Arn., (Apocynaceae). Hossain et al (2019). p. 151. Khulna: Nilkomol, Balirgang.
83. *Leucas martinicensis* (Jacq.) R. Br., (Lamiaceae). Hossain et al (2020). p. 256. Gazipur: Kapasia.
84. *Litsea grandis* (Nees) Hook.f., (Lauraceae). Uddin (2018). p. 25. Cox's Bazar: Ukhia, Chipotkhali.
85. *Livistona jenkinsiana* Griff., (Arecaceae). Sourav & Anwar (2019). p. 376. Bandarban: Thanchi, Sangu Reserve Forest.
86. *Meliosma rhoifolia* Maxim., (Sabiaceae). Uddin (2018). p. 41. Khagrachari: Matiranga, Achalong Reserve Forest.
87. *Miliusa balansae* Finet & Gagnepain, (Annonaceae). Uddin et al (2015). p. 254. Bandarban: Sadar, Meghla, Dulu jhiri.
88. *Mnesithea merguensis* (Hook.f.) A.Camus, (Poaceae). Uddin (2018). p. 33. Chattogram: Fatikchari, Sarkerhat, Kumarikhal.
89. *Murdannia gigantea* (Vahl) G.Brückn., (Commelinaceae). Ashrafuzzaman et al (2022). p. 20788. Mymensingh: Bangladesh Agricultural University, Botanical Garden.
90. *Murdannia japonica* (Thunb.) Faden, (Commelinaceae). Rahman et al (2018). p. 92. Moulvibazar: Rajkandi Reserve Forest.
91. *Myriophyllum aquaticum* (Vell.) Verdc., (Haloragaceae). Alfasane et al (2019). p.128. Sylhet: Moulvibazar, Kamalganj, Madhabpur Lake.
92. *Nervilia plicata* (Andrews) Schltr., (Orchidaceae). Uddin (2018). p. 32. Cox's Bazar: Teknaf, Jadi Pahar.
93. *Neuracanthus tetragonostachyus* Nees in Wall., (Acanthaceae). Uddin (2018). p. 4. Bandarban: Ruma, Boga Lake.
94. *Oberonia disticha* (Lam.) Schltr., (Orchidaceae). Hossain et al (2019). p. 153. Bagerhat: Shorankhola, Shupati.
95. *Odontonema tubaeforme* (Bertol.) Kuntze, (Acanthaceae). Ashrafuzzaman & Sarwar (2021). p. 451. Mymensingh: Bangladesh Agricultural University, Botanical Garden.
96. *Ophiorrhiza succirubra* King ex Hook.f., (Rubiaceae). Uddin (2018). p. 40. Khagrachari: Mohalchhari, Micechhari Forest.
97. *Oxyspora paniculata* (D. Don) DC., (Melastomataceae). Uddin et al (2018). p. 2. Chittagong: Hazarikhil Wildlife Sanctuary.
98. *Pachystylidium hirsutum* (Blume) Pax & K.Hoffm., (Euphorbiaceae). Uddin (2018). p. 19. Rangamati: Baghaichhari, Kochuchhari.
99. *Parsonsia latifolia* (Benth.) S.T. Blake, (Apocynaceae). Uddin (2018). p. 9. Chattogram: Sitakundo, Chandranath Pahar.
100. *Phalaenopsis difformis* (Wall. ex Lindl.) Kocyan & Schuit, (Orchidaceae). Huda et al (2020). p. 126. Sylhet: Shadi beat, Jaflong, Jaintiapor, Jaintia hill.
101. *Phlogacanthus guttatus* Nees, (Acanthaceae). Uddin (2018). p. 4. Bandarban: Sadar, Y-Junction Forest Range.
102. *Pinalia acervata* (Lindley) Kuntze, (Orchidaceae). Huda et al (2019). p. 201. Bandarban: Keokaradung Mountain, Ruma.
103. *Pinalia obesa* (Lindl.) Kuntze, (Orchidaceae). Huda et al (2019). p. 198. Bandarban: Nilgiri, Jibonnagar Pahar.
104. *Pinalia spicata* (D. Don) S. C. Chen & J. J. Wood, (Orchidaceae). Huda et al (2019). p. 199. Bandarban: Keokaradung Mountain, Ruma.
105. *Piper boehmeriifolium* (Miq.) Wall. ex C. DC., (Piperaceae). Uddin (2018). p. 32. Bandarban: Naikhongchhari, Gungdum.
106. *Piper brachyrachis* C.H.Wright, (Piperaceae). Uddin (2018). p. 33. Chattogram: Hathazari, Mithachari.
107. *Piper mullesua* Buch.-Ham. ex D. Don, (Piperaceae). Uddin (2018). p. 33. Bandarban: Ruma, Poly Forest Range.
108. *Platyserium wallichii* Hook., (Polypodiaceae). Uddin (2018). p. 34. Cox's Bazar: Teknaf, Shilkhali.
109. *Plukenetia corniculata* Sm., (Euphorbiaceae). Uddin (2018). p. 22. Rangamati: Baghaichhari, Kachuchari.
110. *Pogostemon griffithii* Prain, (Lamiaceae). Uddin (2018). p. 25. Bandarban: Rowangchari, Khaiyachalang Forest Range.
111. *Pollia miranda* (H.Lév.) H.Hara, (Commelinaceae). Uddin (2018). p. 15. Khagrachari: Mohalchhari, Maicechhari Reserve Forest.
112. *Polygala alphonisii* Buch.-Ham. ex DC., (Polygalaceae). Uddin (2018). p. 34. Bandarban: Thanchi, Thanchi Forest Range.
113. *Pseuderanthemum crenulatum* (Wall. ex Lindl.) Radlk., (Acanthaceae). Uddin (2018). p. 5. Cox's Bazar: Ukhia, ChepotKhali.
114. *Pseuderanthemum laxiflorum* (A.Gray) F.T. Hubb., (Acanthaceae). Ashrafuzzaman & Sarwar (2021). p. 453. Mymensingh: Bangladesh Agricultural University, Botanical Garden.
115. *Pseuderanthemum maculatum* (Lodd.) I.M.Turner, (Acanthaceae). Ashrafuzzaman & Sarwar (2021). p. 451. Mymensingh: Bangladesh Agricultural University, Botanical Garden.
116. *Pycnarrhena lucida* (Teusm. & Binn.) Miq., (Menispermaceae). Uddin (2018). p. 27. Bandarban: Sadar, Kuhalong para.
117. *Rhaphidophora calophyllum* Schott var. *violaceus* H. Ara & M.A. Hassan, var. nov. (Araceae). Ara & Hassan (2019). p.20. Bangladesh: Moulvibazar, Madhabkundo reserve forest.

118. *Salacia fruticosa* Heyne ex M.Lawson in Hook.f., (Hippocrateaceae). Uddin (2018). p. 24. Cox's Bazar: Chokoria, Malumghat.
119. *Salacia malabarica* Gamble, (Hippocrateaceae). Uddin (2018). p. 24. Rangamati: Bilaichari, Pharua Reserved Forest.
120. *Saurauia armata* Kurz, (Actinidiaceae). Uddin (2018). p. 7. Bandarban: Sadar, Kuhalong, Kuhalong Para.
121. *Saurauia punduana* Wall., (Actinidiaceae). Uddin (2018). p. 7. Bandarban: Naikhongchhari, Gumdum.
122. *Sechium edule* (Jacq.) Sw., (Cucurbitaceae). Uddin (2018). p. 16. Rangamati: Baghaichari, Sajek Valley, Konglakpara.
123. *Sida alnifolia* L., (Malvaceae). Uddin (2018). p. 26. Cox's Bazar: Teknaf, Domdopia Nature Park.
124. *Solanum aethiopicum* L., (Solanaceae). Islam et al (2018). p. 112. Bandarban: Ruma, Munlaipara.
125. *Solanum macrocarpon* L., (Solanaceae). Islam et al (2018). p. 114. Bandarban: Ruma, Keokradong peak.
126. *Spermacoce ocyroides* Burm. f., (Rubiaceae). Uddin et al (2015). p. 255. Chittagong: Hathazari, Chittagong University Kata Pahar road side.
127. *Spiradiclis bifida* Kurz, (Rubiaceae). Islam & Rahman (2017). p. 228. Chittagong: Hazarikhil Wildlife Sanctuary.
128. *Stachyphrynium spicatum* (Roxb.) K.Schum., (Marantaceae). Uddin (2018). p. 26. Chattogram: Lohagara, Chunati Wildlife Sanctuary.
129. *Strobilanthes alternata* (Burm.f.) Moylan ex J.R.I.Wood, (Acanthaceae). Ashrafuzzaman & Sarwar (2021). p. 448. Mymensingh: Bangladesh Agricultural University, Botanical Garden.
130. *Strobilanthes capitata* (Nees) T.Anderson, (Acanthaceae). Uddin (2018). p. 5. Rangamati: Baghaichari, Kassalong Reserved Forest.
131. *Strobilanthes chinensis* (Nees) Wood & Deng, (Acanthaceae). Uddin (2018). p. 6. Cox's Bazar: Moggomorchara, Eidgarh.
132. *Strobilanthes dimorphotricha* Hance, (Acanthaceae). Uddin (2018). p. 6. Bandarban: Ruma, Chingrihiri (way to Keokra Dong).
133. *Strobilanthes glomerata* (Nees) T.Anderson, (Acanthaceae). Uddin (2018). p. 6. Rangamati: Barkal, Chotohorina.
134. *Strobilanthes urticifolia* Wall. ex Kuntze, (Acanthaceae). Islam & Rahman (2017). p. 228. Chittagong: Hazarikhil Wildlife Sanctuary.
135. *Struchium sparganophorum* (L.) Kuntze, (Asteraceae). Uddin & Uddin (2022). p. 432. Noakhali: Sonaimuri, Amki.
136. *Sumbaviopsis albicans* (Blume) Sm., (Euphorbiaceae). Uddin (2018). p. 22. Bandarban: Naikhyongchhari, Gundhum.
137. *Symphorema involucreatum* Roxburgh, (Verbenaceae). Uddin et al (2015). p. 254. Bandarban: Sadar, Meghla, Recha jhiri.
138. *Tradescantia sillamontana* Matuda, (Commelinaceae). Ashrafuzzaman et al (2022). p. 20789. Mymensingh: Bangladesh Agricultural University, Botanical Garden.
139. *Typhonium elatum* H. Ara & M.A. Hassan, sp. nov. (Araceae). Ara & Hassan (2018). p.234. Bangladesh: Sherpur, Samaschura beat.
140. *Typhonium trilobatum* (L.) Schott var. *fulvus* H. Ara & M.A. Hassan, var. nov. (Araceae). Ara & Hassan (2019). p.23. Bangladesh: Netrakona, Farangpara.
141. *Uncaria cordata* (Lour.) Merr., (Rubiaceae). Uddin (2018). p. 40. Bandarban: Naikhongchhari Forest Range.
142. *Uraria leptostachya* Graham, (Fabaceae). Uddin (2018). p. 23. Chattogram: Mirsharai, Khaiyachara.
143. *Utricularia geminiscapa* Benj., (Lentibulariaceae). Alfasane et al (2020). p.191. Jhenaidah: Kotchandpu, Baluhar Baor.
144. *Utricularia rosettifolia* Alfasane & Hassan sp. nov. (Lentibulariaceae). Alfasane et al (2020). p.206. Bangladesh: Jhenaidah, Kotchandpur, Safdalpur, Joydia baor.
145. *Volkameria heterophylla* Vent., (Lamiaceae). Hossain et al (2020). p. 254. Bagerhat: Shorankhola, Kotka, Beside Jamtola khal.
146. *Whitfieldia elongata* (P.Beauv.) DeWild. & T.Durand, (Acanthaceae). Ashrafuzzaman & Sarwar (2021). p. 453. Mymensingh: Bangladesh Agricultural University, Botanical Garden.
147. *Xantolis assamica* (Clarke) van Royen, (Sapotaceae). Uddin (2018). p. 41. Chattogram: Fatikchhari, Hazarikhil Wildlife Sanctuary.

3. RESULTS

As new records and new species from Bangladesh, a total of 147 vascular taxa under 111 genera and 53 families have been added to the preceding lists. Among those taxa, 145 belong to angiosperms and two are in the pteridophyte group, such as *Azolla microphylla* and *Platyserium wallichii*. Out of 147 total taxa, 137 vascular taxa were reported as new records for Bangladesh and 10 taxa have been discovered as new to the world flora, which are as follows: *Abrus precatorius* L. var. *albo-spermum*, *Alocasia hararganjensis*, *Alocasia salarkhanii*, *Colocasia fallax* Schott var. *purpurea*, *Colocasia hassanii*, *Colocasia oresbia* A. Hay var. *stolonifera*, *Rhaphidophora calophyllum* Schott var. *violaceus*, *Typhonium elatum*, *Typhonium trilobatum* (L.) Schott var. *fulvus* and *Utricularia rosettifolia*.

Seventeen genera (i.e., *Anaxagorea*, *Blachia*, *Cansjera*, *Centratherum*, *Cleidiocarpon*, *Hydrophylax*, *Leptadenia*, *Neuracanthus*, *Pachystylidium*, *Platyserium*, *Plukenetia*, *Sechium*, *Stachyphrynium*, *Struchium*, *Sumbaviopsis*, *Symphorema*, and *Xantolis*) are also being reported here as new generic records for Bangladesh. Six families, Orchidaceae (22 taxa), Acanthaceae (18 taxa), Rubiaceae (11 taxa), Euphorbiaceae (10 taxa), Araceae (8 taxa), and Commelinaceae (6 taxa), are discovered to have the highest taxa in the study (Figure 1). There are three new taxa in five families (Asteraceae, Fabaceae, Lamiaceae, Piperaceae, and Urticaceae), two

new taxa in fifteen families, and one new taxon in each of the remaining twenty-seven families. These taxa include 75 species of herbs, 25 species of climbers, 25 species of shrubs, and 22 species of trees (Figure 2).

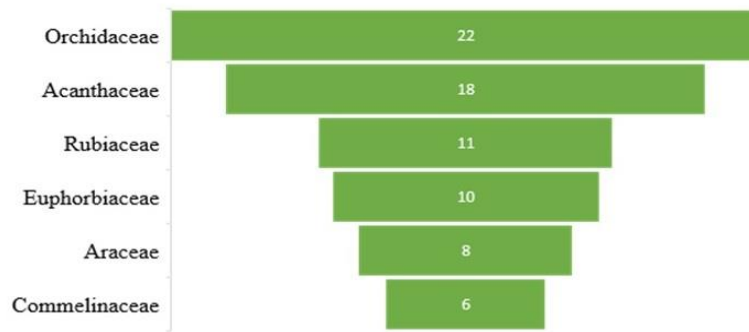


Figure 1 Dominant Families with new taxa

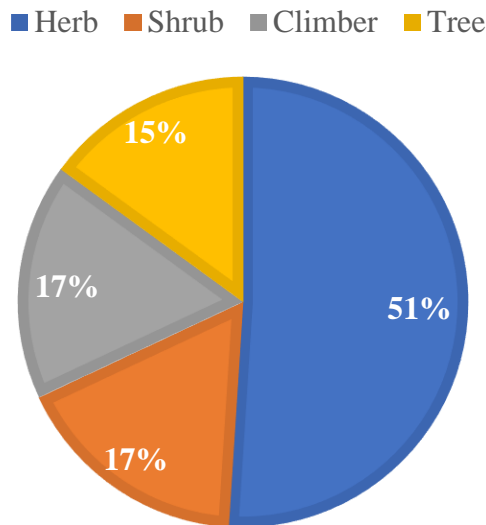


Figure 2 Number of species of each life-form.

4. DISCUSSION

A total of 147 vascular taxa have been added to the previous lists as new records and new species from Bangladesh. The "Encyclopedia of Flora and Fauna of Bangladesh" compiled 3,649 taxa, Rahman's (2017, 2018) included 160 taxa, and this study added 147 taxa for a total of 3,956 taxa as of this study.

5. CONCLUSION

As a result of this compilation, a total of 3,956 vascular taxa have been reported for the flora of Bangladesh.

Authors' contribution

All authors contributed equally to the successful completion of the research work. Md. Salah Uddin designs the work. Data collection and processing were done by Abdullah-Al-Masud Mazumder and Md. Salah Uddin. Shaikh Bokhtear Uddin did the final correction. Finally, all authors read and approved the final work

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Ethical approval

New vascular taxa of the flora from Bangladesh were observed in the study. The ethical guidelines for plants & plant materials are followed in the study for sample collection & identification.

Informed consent

Not applicable.

Conflicts of interests

The authors declare that there are no conflicts of interests.

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Data and materials availability

All data associated with this study are present in the paper.

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